

CLAIMS

What is claimed is:

- 1    1. A color-separating and -recombining optical system  
2       comprising:  
3           a light-beam separating section having a beam-  
4       separating plane to separate an incident light beam  
5       having a first light component, a second light  
6       component, and a third light component into the first,  
7       second, and third light components, respectively;  
8           a first polarization beam splitter having a first  
9       beam-splitting plane in which the first light component  
10      is incident;  
11          a second polarization beam splitter having a second  
12      beam-splitting plane in which the second and third light  
13      components are incident;  
14          A light-beam recombining section having a beam-  
15      recombining plane to recombine the first light component  
16      emitted from the first polarization beam splitter and  
17      the second and third light components emitted from the  
18      second polarization beam splitter, wherein the beam-  
19      separating plane, the first and second beam-splitting  
20      planes and the beam-recombining plane intersect each  
21      other like a character-"X"; and  
22          a light blockage provided in the vicinity of an  
23      intersection of the beam-separating plane, the first and  
24      second beam-splitting planes and the beam-recombining  
25      plane, the light blockage preventing light components of  
26      the light beam incident in the light-beam separating  
27      section from being incident in the light-beam  
28      recombining section without being incident in the first  
29      or the second polarization beam splitter.
- 1    2. The color-separating and -recombining optical system  
2       according to claim 1, wherein the light-beam separating

3 section has a first corner and the light-beam  
4 recombining section has a second corner, the first and  
5 second corners being cut out to be flat to face each  
6 other as the light blockage.

1 3. The color-separating and -recombining optical system  
2 according to claim 1, wherein the first or the second  
3 polarization beam splitter is smaller than the light-  
4 beam recombining section, the light blockage being  
5 provided between the light-beam recombining section and  
6 the first or the second polarization beam splitter.

1 4. The color-separating and -recombining optical system  
2 according to claim 1, wherein the first or the second  
3 polarization beam splitter is smaller than the light-  
4 beam recombining section, the light blockage being  
5 provided in an optical component provided between the  
6 light-beam recombining section and the first or the  
7 second polarization beam splitter.

1 5. The color-separating and -recombining optical system  
2 comprising:

3 a light-beam separating section having a beam-  
4 separating plane to separate an incident light beam  
5 having a first light component, a second light  
6 component, and a third light component into the first,  
7 second, and third light components, respectively;

8 a first polarization beam splitter having a first  
9 beam-splitting plane in which the first light component  
10 is incident;

11 a second polarization beam splitter having a second  
12 beam-splitting plane in which the second and third light  
13 components are incident;

14           a light-beam recombining section having a beam-  
15           recombining plane to recombine the first light component  
16           emitted from the first polarization beam splitter and  
17           the second and third light components emitted from the  
18           second polarization beam splitter, wherein the beam-  
19           separating plane, the first and second beam-splitting  
20           planes and the beam-recombining plane intersect each  
21           other like a character-"X"; and

22           a light blockage provided in the vicinity of a joint  
23           portion of the light-beam recombining section and the  
24           first or the second polarization beam splitter, the  
25           light blockage preventing light components of the light  
26           beam incident in the light-beam separating section from  
27           being incident in the light-beam recombining section  
28           without being incident in the first or the second  
29           polarization beam splitter.

1    6. A projection display comprising:

2           a light-beam separating section having a beam-  
3           separating plane to separate an incident light beam  
4           having a first light component, a second light  
5           component, and a third light component into the first,  
6           second, and third light components, respectively;

7           a first polarization beam splitter having a first  
8           beam-splitting plane in which the first light component  
9           is incident;

10          a second polarization beam splitter having a second  
11          beam-splitting plane in which the second and third light  
12          components are incident;

13          a light-beam recombining section having a beam-  
14          recombining plane to recombine the first light component  
15          emitted from the first polarization beam splitter and  
16          the second and third light components emitted from the  
17          second polarization beam splitter, wherein the beam-

18 separating plane, the first and second beam-splitting  
19 planes and the beam-recombining plane intersect each  
20 other like a character-"X"; and

21 a light blockage provided in the vicinity of an  
22 intersection of the beam-separating plane, the first and  
23 second beam-splitting planes and the beam-recombining  
24 plane, the light blockage preventing light components of  
25 the light beam incident in the light-beam separating  
26 section from being incident in the light-beam  
27 recombining section without being incident in the first  
28 or the second polarization beam splitter.

1 7. A projection display comprising:

2 a light-beam separating section having a beam-  
3 separating plane to separate an incident light beam  
4 having a first light component, a second light  
5 component, and a third light component into the first,  
6 second, and third light components, respectively;

7 a first polarization beam splitter having a first  
8 beam-splitting plane in which the first light component  
9 is incident;

10 a second polarization beam splitter having a second  
11 beam-splitting plane in which the second and third light  
12 components are incident;

13 a light-beam recombining section having a beam-  
14 recombining plane to recombine the first light component  
15 emitted from the first polarization beam splitter and  
16 the second and third light components emitted from the  
17 second polarization beam splitter, wherein the beam-  
18 separating plane, the first and second beam-splitting  
19 planes and the beam-recombining plane intersect each  
20 other like a character-"X"; and

21 a light blockage provided in the vicinity of a joint  
22 portion of the light-beam recombining section and the

23 first or the second polarization beam splitter, the  
24 light blockage preventing light components of the light  
25 beam incident in the light-beam separating section from  
26 being incident in the light-beam recombining section  
27 without being incident in the first or the second  
28 polarization beam splitter.